Blue Lakes

No microplastics, just waves.

NO MICROPLASTICS, JUST WAVES.

Fact sheet on microplastics in clothing and textile products

Within the framework of the "Blue Lakes" project

COORDINATOR BENEFICIARY

LEGAMBIENTE

ASSOCIATED BENEFICIARIES

Autorità di Bacino Distrettuale dell'Appennino Centrale

arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria

ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

Global Nature Fund

Bodensee Stiftung Lake Constance Foundation

UNIVERSITÀ POLITECNICA DELLE MARCHE

PROJECT CO-FINANCED BY

PlasticsEurope

www.lifebluelakes.eu / info@lifebluelakes.eu

Fact sheet on microplastics in clothing and textile products

The Life Blue Lakes Project

Plastic is omnipresent. Without plastics, our modern life and work would not be possible. But the light, hygienic and unbreakable material, which can be moulded into any shape and has found its way into all areas of life, also shows disadvantages, for example the huge plastic rubbish carpets that float on our oceans. Another problem becomes apparent under the microscope: **microplastics**. Scientists have already detected microplastics in water, soil, air and even in our food. But what health consequences the tiny particles have on humans and nature has not yet been sufficiently researched.

Therefore, the Lake Constance Foundation and the Global Nature Fund, in cooperation with the Italian nature conservation organisation Legambiente and five other partners, have launched the EU Life project "Blue Lakes" on the topic of microplastics in water bodies. In five lake regions in Italy and Germany (Garda, Trasimeno, Bracciano, Lake Constance and Chiemsee), measures on this topic are being implemented in an exemplary manner with the aim of improving decision-making processes and regulatory framework conditions with regard to microplastics. In the project regions, the involvement of the riparian communities plays an important role. Together, a Lake Paper is to be developed that shows numerous potentials on how plastic consumption and microplastics can be reduced in the communities. The project will also look at the technological side of sewage treatment plants in order to filter out microplastics more efficiently.

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

The issue of microplastics has received a lot of attention in recent years. Road and tyre abrasion, fibre fragments from synthetic textiles and plastic particles from cosmetics and cleaning products play a central role in the formation of microplastics. With the Life Blue Lakes project, we want to make a contribution to finding solutions for minimising and avoiding microplastic pollution together with companies.

Further information on the project: https://lifebluelakes.eu/en/

Initial situation

The textile industry rarely uses primary microplastic particles within the production process. Nevertheless, this industry has an influence on the formation and distribution of microplastics in the environment (Bertling 2018). A change has been observed in the textile industry for some time: the proportion of synthetic fibres is steadily increasing (CIRFS 2021). Outdoor industries and sports textiles are particularly involved in this trend, as they use a high proportion of synthetic fibres to achieve certain functions such as quick drying or low weight. For these properties, the fibres are appropriately finished by various processes or with chemicals. Fibres from textiles made from renewable raw materials (e.g. wool, cotton) can also become non-degradable due to treatments such as dyeing or impregnation. In order to include these types of fibres and to avoid confusion with the widely used term "microfibre" in textile products, the term "fibre fragment" is increasingly gaining acceptance in the industry as a designation for textile microplastics.

In general, microplastics are defined as solid particles between 100 nm and 5 mm that contain polymers. For fibre fragments, the length is also taken into account. Fibres with a length between 300 nm and 15 mm are considered microfibres (ECHA 2020). Fibre fragments can consist of synthetic polymers (especially polyester, polyacrylates, PA) or be built up from regenerated natural polymers (TextileMission 2021). However, there is not yet a globally uniform definition for microplastics and fibre fragments.

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

In order to obtain various properties of textiles, microfibres are often used for functional clothing. The production of polyester, the most commonly used material, was 187,000 tonnes in Germany in 2019 (TextileMission 2021).

Fibre fragments are produced on the one hand during the manufacture of garments, but also during their use. Among other things, fibres are released through mechanical abrasion during washing processes in the washing machine. The number of spinners, the load quantity and the time play a significant role (TextileMission 2021). However, it has been proven that a proportion that should not be underestimated is also released during wear, especially into the air (CIA 2020).

Investigations for the example of Germany have shown that on average about 76.8 g of fibre fragments are produced per person and year by textile washing (e.g. clothing) and about 66 g by household laundry (towels, dishcloths, etc.) (Bertling 2018). Studies (Pirc 2016) show that the filters of conventional washing machines are not able to retain these fibre fragments and they thus enter the wastewater treatment plants via the wastewater. Although there are already various washing bags on the market that promise to significantly reduce the emissions of fibre fragments, the Niederrhein University of Applied Sciences was unable to confirm this effect in studies conducted as part of the TextileMission project. In addition, the very fine-pored wash bags reduce the cleaning performance, especially of heavily soiled garments (TextileMission 2020). In the sewage treatment plants, it then depends on the available technologies whether they are able to filter out the fibre fragments. The so-called fourth and fifth treatment stages can remove some (but not all) of such contaminants (BUND 2018). However, they are far from being installed in all wastewater treatment plants in the EU. There are plans to expand these technologies, but the costs are still very high (IWW 2021). Accordingly, it seems obvious not only to capture emissions that have already occurred in wastewater treatment plants (end-of-pipe), but also to develop technologies and approaches to reduce the creation and spread of microplastics and fibre fragments already during product development and production.

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

Even for the microplastics that are collected by the filters of the sewage treatment plants, there is no guarantee that they will not be released back into the environment. This is because only a certain proportion of the sewage sludge from the plants is incinerated. Of the total of 1.7 million tonnes of sewage sludge (dry matter) from municipal wastewater treatment plants in Germany in 2017, for example, more than 28 % was used as fertiliser in agriculture or landscaping measures (BMU 2017). A study published in 2018, for example, shows 150,000 microplastic particles per hectare on German fields (Piehl 2018). What proportion of these ultimately end up in surface waters and groundwater – and thus in our food chain – is still completely unclear at the present time.

Reports of countless marine animals and seabirds getting caught in old fishing nets and drowning or starving to death with full stomachs because they have swallowed plastic parts are increasing. Studies show that the proportion of microplastic fibres in the marine environment is 20-35% of the microplastics examined. In coastal sediments even 95% (TextileMission 2021). But not much is currently known about the effects of microplastics in the environment. There are, however, risks that are increasingly in the focus of experts. For example, microplastics are long-lasting and persistent and cannot be decomposed by microorganisms. Due to the small size of the particles, microplastics already start at the bottom of the food chain and are taken up e.g. by sediment-eating or water-filtering organisms such as mussels. The small plastic particles can injure the stomach and intestinal tract or the gills of the organisms, prevent food intake or accumulate in the living organisms (bioaccumulation). Another aspect makes microplastics in the environment extremely problematic. Pollutants and microorganisms can attach themselves to the rough surface of the particles. These can be pathogens or environmental toxins such as pesticides that bind to the particles via the input pathways or in water bodies. This cocktail of different chemicals harbours an incalculable ecotoxic potential. In addition, the decomposition processes in the environment can release harmful additives such as bisphenol-A and plasticisers from

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

the plastic material. Microplastics, including all the enriched environmental toxins, are passed on through the food chain and eventually end up in fish and thus also on people's plates (Roch 2015).

Possible solutions to reduce emissions from microfibres in connection with textiles

Some companies in the textile industry are already aware of the risks posed by microfibre emissions to water and living organisms. There is increasing interest in finding measures and solutions to this problem (Stanton 2019). The ways in which companies are addressing this challenge vary. The following eight categories can be defined:

1. Research and generate knowledge

In general, it should also be important for companies to generate knowledge, i.e. to ensure that the causes of microplastic emissions are further researched. Even though science, e.g. the research project conducted by the Fraunhofer Institute (Bertling 2018), has already made great progress, the participation of companies in research is still insufficient. Particularly in the areas of production processes, materials, processing steps or usage behaviour, questions arise that are difficult to research without corporate participation. Alternative materials and their acceptance by the target groups, as well as the development and testing of new business models in which textiles can be used for longer, also require a close exchange between research and practice. Researchers at the University of Leeds in the UK have developed a measurement method that can reliably determine the amount of small fibre fragments released from textiles during household washing (Leeds UK 2021). Uniform test methods would ensure better comparability of these research results. The company Eurofins has developed an innovative test method to determine the number of microfibres released during weaving, clothing and washing (Eurofins 2022).

2. Finding solutions together

Researching and tracking sustainability risks can be time-consuming and expensive. One way to deal with this challenge is through joint action by actors with similar goals. A good example of this is the cooperation between the associations and research institutions involved in the Cross-Industry Agreement (CIA 2020). Only recently, the Cross-Industry Agreement published a brochure with new findings on preventing the release of microfibres when washing synthetic textiles. Umbrella organisations such as the European Outdoor Group also already have microfibre emissions from textiles on their agenda, along with other important sustainability issues, and are involved in the search for solutions. Researchers, associations and non-governmental organisations are usually interested in collaboration with companies. Cooperation with actors within the supply chain (e.g. suppliers of primary products or washing machine manufacturers) is important, but still takes place too rarely. Joining forces with competitors in the sector can also generate insights and strengthen sustainability performance overall. One example is "The Microfibre Consortium", which promotes the development of practical solutions for the textile industry, e.g. fibre fragmentation in textile production and product life cycle. One approach is the washing machine filter of the organisation Planet Care, which is supposed to catch 90% of microfibres during washing (PlanetCare 2022).

3. Rethinking product development

By far the biggest environmental problems can be avoided before the product life cycle, namely in the product development phase. This also applies to emissions of fibre fragments by textiles. Many methods already exist to identify the parameters (e.g. microplastics) that are crucial for the respective environmental issue. During product development, customers' needs and wishes can then also be matched with the technical possibilities. Overall, customer wishes will increasingly be oriented towards sustainability criteria. Those who do not move with the times risk losing market share.

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

4. Analyse and improve production processes

As soon as knowledge is available on where companies can start to efficiently reduce emissions of fibre fragments, concrete measures can be introduced. Which part of the production process is particularly relevant for the generation of fibre fragments varies from company to company. But there are empirical values: for example, yarn preparation and fibre, fabric and garment production seem to be particularly decisive. This also includes dyeing, finishing and drying (Castrop-Paula). Directly after production, pre-drying is worthwhile before the product goes on sale in order to remove production residues from the product in a controlled manner, because most fibre fragments are produced by the customer during the first three washing cycles (TextileMission 2020). The studies conducted by Niederrhein University of Applied Sciences as part of the TextileMission research project have also shown that the optimisation of knitting parameters, finishing processes, cutting technologies and the use of alternative seam constructions can have a positive influence on the amount of fibre fragments emitted.

5. Material selection

Fibre fragments are not only produced when synthetic materials are used. Fabrics made from renewable raw materials such as wool or cotton are in principle biodegradable, but treatments such as dyeing or impregnation also produce fibres that are difficult to degrade. The main problem of fibre fragment emissions is persistence, i.e. the fact that plastic is not biodegradable and the quantities in the environment thus increase steadily over time.

Various desired functions, such as light weight or quick drying, are often not fulfilled as well by cotton. But there are natural and semi-synthetic alternatives with different properties such as viscose, modal, lyocell, hemp or more unusual materials like algae fibres, soy silk or fibres from food waste (agraloop). In a study conducted by the TextileMission project, cellulose regenerated fibres in particular proved to be the most

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

efficient, as they are both sustainable in production and biodegradable and can therefore reduce microplastic emissions in the environment (TextileMission 2021).

6. Enabling circular economy and longevity

Most companies and customers are becoming increasingly aware that the fashion industry is in a deep crisis. The trend towards "fast fashion" has led to wardrobes being full and customers' willingness to pay decreasing. The disposal of clothing is also causing major problems. Less than 1% is recycled in closed cycles, and more than 80% of textiles are incinerated or end up in landfills (GIZ 2019). However, a change is slowly taking place and the interest in sustainable, timeless fashion as well as the willingness to pay for it are increasing (YouGov 2019). For companies that want to reduce emissions from fibre fragments, it means noticing these customer wishes and focusing more on durable, high-quality textiles, because microfibres are not only created in the washing machine, but also when clothes are disposed of incorrectly and break down into small particles in the environment over time. Another aspect in the choice of materials used is the recyclability of the textiles. Products made of monomaterials can be completely recycled at the end of their life cycle without the great effort of separating different layers of material or components from each other. There are also initial approaches to offering a repair service for high-quality textiles, which can significantly extend their durability.

7. Thinking holistically about sustainable issues

Unfortunately, when it comes to the important issue of sustainability, there are often no easy solutions. Even ambitious companies have experienced that solving one sustainability problem creates another. For example, the cultivation of cotton and viscose is linked to high chemical and water use. Land requirements also play a role. In some cases, cultivation leads to the deforestation of tropical rainforests (Lifechange 2017). Natural raw materials are therefore not the better alternative across the board. It requires a holistic approach that goes beyond the consideration of current trend

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

issues. This is not always easy and requires constant and continuous improvement and feedback processes.

8. Communication and marketing

Once a company has fulfilled its own responsibilities (e.g. optimisation of production processes), a suitable communication strategy can be developed for suppliers, other companies, customers, potential customers (marketing) and other stakeholders. For example, the knowledge gained can serve as inspiration for other companies that are not yet as far along on their sustainability path. And customers also have an influence on the formation of microplastics. Choosing the right washing programme, for example, can reduce microfibre emissions. The choice of detergent, temperature and load also influence the formation of fibre fragments during the washing process. New scientific research confirms that, for example, shorter wash cycles at lower water temperatures can drastically reduce the emission of microfibres from textiles (Leeds UK 2020). In addition, the fibre discharge is higher with a lower load in the washing drum, as the mechanical irritation is stronger (TextileMission 2021). New research has also shown that the discharge from the dryer is generally higher than the discharge through the laundry, at two to four times the amount (TextileMission 2021). This information could be communicated to customers, for example on labels, websites or enclosed information. But here, too, it is important to ensure that the development and printing of marketing measures do not immediately cancel out the emissions saved. A company should also think about mental rebound effects, because some customers may see the information that they have acted sustainably in their purchase as legitimisation to consider sustainability less or not at all in their next consumption decision.

Political and legal requirements on microplastics in the textile industry

In connection with the European Green Deal, a so-called microplastics ban has been discussed again and again for several years. This refers to the seventh annex of the REACH Regulation. The REACH Regulation regulates the handling and import of chemical substances into and within the European market. The European Chemicals Agency (ECHA) is an authority of the EU and, in consultation with the Committee for Risk Assessment (RAC) and the Committee for Socio-Economic Analysis (SEAC), has developed a proposal between 2017 and 2020 on how the intentional use of microplastics can be restricted in the future. This microplastic ban from the European Green Deal thus bans (if passed) intentionally used and introduced microplastics (primary microplastics) - unfortunately only from a size of 300 nm (for microfibres). Thus, the draft law only regulates a minimal share (about 0.2%) of microplastic emissions and only under certain conditions (EEB 2020). For the textile industry, the current draft law is therefore hardly relevant. Other sectors such as the chemical industry assessed earlier drafts as too imprecise and too strict, as the polymers were not defined more precisely in the earlier drafts of the law and particles with only a few nanometres (1 nm for particles, 3 nm for microfibres) were already part of the regulations. For companies, these very small particles are difficult to distinguish from any polymeric materials. There is therefore a risk that the definition will lead to contradictions and legal uncertainty (VCI 2019). ECHA has reacted to this criticism and adapted the microplastic definition so that, among other things, nanoplastics are no longer part of the definition (ECHA 2020). Environmental organisations criticise this adjustment, as nanoparticles are considered particularly toxic and can even penetrate human cells (EEB 2020).

The focus of the discussion on the adaptation of the EU regulation is thus the definition of microplastics, as this decides whether individual sectors will be affected by the ban

or not. At the same time, the definition decides whether nanoparticles, which are considered particularly toxic, will remain permitted in the future or not. The current draft will be discussed by the EU member states in 2021. It can be assumed that the new regulation with the current adjustments will come into force in 2022 at the earliest.

The current legislation thus provides hardly any restrictions for the textile industry. However, a survey shows that 63 percent of the people questioned are very concerned about the increasing use of nanoparticles (EUON 2020). These societal concerns are likely to have a greater influence on regulations and laws in the near future. In a series of workshops initiated by the textile association textile+fashion, experts forecast a complete ban on microplastic-generating substances by 2030 (Peters 2020). In any case, it makes sense for companies to proactively prepare for future legislative changes at an early stage.

ANNEX

Viewpoints of individual companies in the textile industry on the topic of microplastics

The four top-selling fashion companies have different perspectives on the issue of sustainability and microplastics. Overall, a greater interest can be seen among smaller manufacturers. But even the largest manufacturers now approach the topic of microplastics in different ways.

Nike

With a turnover of around 24.8 billion euros, NIKE is the company with the highest turnover in the textile industry. For NIKE, the year 2020 is marked by the new sneaker model "Space Hippie". NIKE processes waste from production processes, unsold shoes or worn sneakers in the shoe. The aim is to close cycles and reduce CO_2 emissions. NIKE is a member of "The Microfibre Consortium" and works in cooperation with other actors (Cross-Industry-Agreement) on uniform test procedures for the determination of microfibres (NIKE 2020). Nike has launched its new collection "Nike Forward" in 2022, which is produced with an average of 75% less Co2 emissions and consists of 70% recycled plastic fibres (NIKE 2022).

Inditex

The Spanish Inditex Group (21.68 billion euros turnover) includes ZARA, Pull & Bear, Bershka and other fashion brands. Their perspective and attitude to the issue of microplastics has so far been rather reserved. In its sustainability report, Inditex mentions its involvement in general sustainability initiatives under the item microplastics, but these do not focus on microplastics. Microplastics do not

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

seem to be part of the sustainability strategy yet. Enquiries about this were also not answered (CDP 2020). The Inditex Group is a member of The Microfibre Consortium.

H&M

The Swedish H&M Group (21.68 billion euros turnover) includes brands such as H&M, Monk, Cheap Monday, Sellpy, COS and Afound. With some of its brands, H&M specifically focuses on sustainability trends, such as the circular economy of clothing. For example, Sellpy, COS and Afound are offered as used clothing on so-called reseller platforms. When clothing is circularised, production volumes also decrease and so do microfibre emissions. However, this commitment is in contradiction to the destruction and incineration of functional clothing, which is repeatedly criticised. H&M has a clear stance on microplastics and is involved in The Microfibre Consortium, the MinShed project and has developed a microfibre reduction management tool together with a Chinese university. In some H&M shops and online, Guppyfriend wash bags can be purchased to reduce microfibre emissions during washing. In addition, H&M - in contrast to its competitors - responded to the CDP enquiry and named its own measures: According to the sustainability report, H&M is constantly optimising its production processes to reduce microplastic emissions. H&M's goal is to use only recycled or other more sustainably sourced materials by 2030.

Adidas

Adidas is a German company and the fourth largest apparel brand in the world with sales of 19.29 billion euros. The Adidas Group includes brands such as adidas, Reebok, TaylorMade, Rockport, CCM, Ashworth and Five Ten. Adidas, like H&M and NIKE, produces clothing from recycled PET bottles (fleece) and draws consumers' attention to the positive impact of recycling, but not to the

emissions from microfibres. Adidas is involved in various sustainability initiatives on microplastics, including the TextileMission research project and is a member of The Microfibre Consortium and the Microfibres Research Cohort. In addition, according to the Sustainability Report, Adidas is working to optimise its own production processes and is researching the use of potential new materials that have lower microfibre emissions.

Vaude

The German outdoor manufacturer Vaude focuses on environmentally friendly and fair products with a long lifetime and good reparability. In addition to the topic of microplastics, Vaude is also committed to other sustainability issues. On the company website, the company provides detailed information on the topic of microplastics and participates in the joint project "TextileMission". With "Green Shape", Vaude has developed its own label that stands for functional, environmentally friendly products made from sustainable materials as well as for fair working conditions and a transparent supply chain. Vaude is a member of The Microfibre Consortium and the Alliance for Sustainable Textiles of the German Federal Government.

Patagonia

Sustainability plays an important role at Patagonia. As part of the "1% for the Planet" initiative, Patagonia donates 1% of its turnover to support environmental protection projects. Patagonia focuses on high quality and durable products. Customers are offered repair options or return products that cannot be repaired for further recycling or upcycling. In the USA, the company offers a second-hand platform. Recycled materials are used in a large part of the product range. On its website, Patagonia provides very detailed information about the topic of microplastics and about scientific research studies that Patagonia commissioned from the Bren School of Environmental Science and Management at the

University of California, Santa Barbara, to examine Patagonia products for the emission of fibre fragments. A second study, in collaboration with North Carolina State University, was to investigate the properties of fibres and fabrics that lead to the release of microfibres. Patagonia announces that customers will be explicitly informed about how to care for synthetic garments and reduce microfibre shedding in the laundry when they purchase a product. Patagonia is a member of The Microfibre Consortium.

Bergans

The Norwegian outdoor manufacturer Bergans focuses on developing high-quality products with a long durability and partly uses bluesign® certified or recycled materials. Good reparability of the products is part of the sustainability strategy. Bergans is a member of The Microfibre Consortium and points out the problem of microfibre emissions from garments on the company website.

Didriksons

The Swedish clothing manufacturer Didriksons states that it attaches great importance to durable and high-quality products. The company partly uses recycled polyester or upcycled cotton for the production. Didriksons has launched a product on the market that is 100% recyclable, as it does not consist of a mix of materials but only of one material and even does without zips and buttons. The recyclability of Didriksons' products labelled as "recyclable" has been confirmed by the "Swedish Green Dot". The issue of micropastics is not listed on the company website. However, Didriksons is involved in various other sustainability issues.

Fenix Outdoor

The Fenix Outdoor Group includes well-known brands such as Fjällräven, Tierra, Primus, Hanwag and Globetrotter. The company mentions the term microplastic in its CSR report and refers to its membership in The Microfibre Consortium.

Sources

Pirc 2016. Pirc et al., 2016. Emissions of microplastic fibers from microfibre fleece during domestic washing

CIRFS 2021. https://www.cirfs.org/statistics/key-statistics/world-production-fibre

IWW 2021. https://iww-online.de/iww-wasseroekonomen-haben-es-ausgerechnet-das-wuerde-eine-flaechendeckende-4-reinigungsstufe-in-europa-tatsaechlich-kosten/

BMU 2017: https://www.bmu.de/themen/wasser-abfall-boden/abfallwirtschaft/statistiken/klaerschlamm/

Mitrano 2020. https://www.nature.com/articles/s41467-020-19069-1

EURACTIV 2020. https://www.euractiv.com/section/transport/news/tyre-industry-pushes-back-against-evidence-of-plastic-pollution/

Stone 2020. https://www.sciencedirect.com/science/article/pii/S0048969719346807

Klasmeier 2016. Klasmeier J., Wissing M. (2016): Waschmaschinenablauf als mögliche Eintragsquelle von Textilfasern (Mikroplastik) in Gewässer, Institut für Umweltsystemforschung, Universität Osnabrück, Studie erstellt im Auftrag des NLWKN, Januar 2017.

Bertling 2018. Bertling, Jürgen; Bertling, Ralf; Hamann, Leandra: Kunststoffe in der Umwelt: Mikro- und Makroplastik. Ursachen, Mengen, Umweltschicksale, Wirkungen, Lösungsansätze, Empfehlungen. Kurzfassung der Konsortialstudie, Fraunhofer-Institut für Umwelt-, Sicherheits- und Energietechnik UMSICHT (Hrsg.), Oberhausen, Juni 2018

ECHA 2020. European Chemicals Agency (ECHA). Committee for Risk Assessment (RAC), Committee for Socio-economic Analysis (SEAC). Background Document to the Opinion on the Annex XV report proposing restrictions on intentionally added microplastics. Juni 2020

CIA 2020. https://euratex.eu/cia/

CDP 2020. Interwoven risks, untapped opportunities. The business case for tackling water pollution in apparel and textile value chains.
Roch 2015. Mikroplastik in Seen und Flüssen - Eine bisher unterschätzte Belastung für die Umwelt?

Leeds UK 2021:
https://www.leeds.ac.uk/news/article/4783/reliably_measuring_microplastics_released_during_laundry

EEB 2020. https://meta.eeb.org/2020/09/01/an-eu-ban-on-microplastic-is-set-to-make-the-problem-worse/

EUON 2020. https://euon.echa.europa.eu/view-article/-/journal_content/title/what-do-eu-citizens-think-about-nanomaterials

Peters 2020. Textil+mode. Robert Peters und Kerstin Goluchowicz. Forschungskuratorium textil. Perspektiven 2035. Ein Leitfaden für die textile Zukunft. Langfassung. 2020.

Piehl 2018. https://www.nature.com/articles/s41598-018-36172-y

VAUDE 2020. https://nachhaltigkeitsbericht.vaude.com/gri/umwelt/mikroplastik.php

Stanton 2019. https://doi.org/10.1016/j.scitotenv.2019.02.278

GEO 2019. https://www.geo.de/natur/nachhaltigkeit/21770-rtkl-recycling-stammt-ocean-plastic-wirklich-aus-dem-ozean

Tagesspiegel 2019. https://www.tagesspiegel.de/wirtschaft/kleider-aus-plastikmuell-guter-gedanke-geringer-langfristiger-nutzen/25335694.html

EMF 2018. https://www.newplasticseconomy.org/news/globalcommitment

TextileMission 2020. https://textilemission.bsi-sport.de

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
arpa UMBRIA Agenzia Regionale per la Protezione Ambientale dell'Umbria
ENEA AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

TextileMission 2021 https://textilemission.bsi-sport.de/aktuelles/textilemission-abschlusspublikation/

Lifechange 2017. https://www.lifechange.at/viskose-zerstoert-unsere-kleidung-den-regenwald/

Leeds UK 2020: http://www.leeds.ac.uk/news/article/4524/quicker_and_cooler_is_best_for_clothes

YouGov 2017. https://yougov.de/news/2019/06/17/jeder-zweite-wurde-mehr-geld-fur-nachhaltige-mode-/

NIKE 2020. https://purpose.nike.com/microfibres

COORDINATOR BENEFICIARY
LEGAMBIENTE
ASSOCIATED BENEFICIARIES
Autorità di Bacino Distrettuale dell'Appennino Centrale
Global Nature Fund
Bodensee Stiftung
UNIVERSITÀ POLITECNICA DELLE MARCHE
PROJECT CO-FINANCED BY
PlasticsEurope

Contact

Global Nature Fund
Udo Gattenlöhner
Project manager
Fritz Reichle Ring 4
78315 Radolfzell
gattenloehner@globalnature.org
www.globalnature.org

Global Nature Fund
Leonie Boddenberg
Fritz Reichle Ring 4
78315 Radolfzell
boddenberg@globalnature.org
www.globalnature.org

Lake Constance Foundation
Dimitri Vedel
Project Manager
Fritz Reichle Ring 4
78315 Radolfzell
dimitri.vedel@bodensee-stiftung.org
www.bodensee-stiftung.org

The activities of the Global Nature Fund within the Living Lakes Network, which include the implementation of the Life Blue Lakes project, are supported by Alfred Kärcher SE & Co. KG.

other project sponsors:

Date: March 2021